PATENT Attorney Docket No. 401484/BRAUN

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

KNORZER et al.

Art Unit: Unknown

Application No. Unknown

Examiner: Unknown

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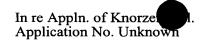
For:

ELECTRIC AXIAL FLOW

MACHINE

PENDING CLAIMS AFTER ENTRY OF PRELIMINARY AMENDMENT

- 1. An electric axial flow machine including an ironless disk-shaped rotor arranged on a machine shaft and having permanent magnets embedded in a fiber- or fabric-reinforced plastic, and, on both sides, next to the rotor, a stator, wherein the permanent magnets are each joined to the surrounding fiber- or fabric-reinforced plastic so that the permanent magnets and the machine shaft, form a dimensionally stable unit.
- 2. The electric axial flow machine as claimed in claim 1, wherein the permanent magnets are arranged in a circle around the machine shaft and the fiber- or fabric-reinforced plastic extends between the permanent magnets over at least 10%, of the circle.
- 3. The electric axial flow machine as claimed in claim 1, wherein the rotor has on an outer circumference or proximate the outer circumference a stiffening band comprising preimpregnated fibrous material, the rotor becoming thicker with increasing distance from the machine shaft.
- 4. The electric axial flow machine as claimed in claim 1, comprising means for determining magnetic pole position of the rotor including a magnetic strip arranged on an outer circumference of the rotor and having a radially magnetized series of magnetic poles arranged in correspondence to the permanent magnets embedded in the fiber- or fabric-reinforced plastic, and fixed-in-place Hall probes interacting with the magnetic poles.
- 5. The electric axial flow machine as claimed in claim 1, wherein the fiber- or fabric-reinforced plastic comprises an epoxy resin or an imide resin with glass fiber reinforcement.



- 6. The electric axial flow machine as claimed in claim 1, wherein the permanent magnets respectively comprise at least two separate magnet segments next to one another, in a circumferential direction, joined by a metal adhesive.
- 7. The electric axial flow machine as claimed in claim 1, wherein the stator comprises an annular yoke including slots extending approximately radially and through which multi-phase windings pass.
- 8. The electric axial flow machine as claimed in claim 7, wherein one of the permanent magnets and the slots are transposed in a circumferential direction.
- 9. The electric axial flow machine as claimed in claim 1, including two stators electrically offset in relation to one another in a circumferential direction by 180° so that magnetic fluxes in the circumferential direction in the rotor are oppositely oriented and essentially cancel one another.
- 10. A method for producing a rotor for an electric axial flow machine as claimed in claim 1, wherein the machine shaft and the permanent magnets are arranged in a mold and a pre-heated fiber- or fabric-reinforced plastic is subsequently poured under pressure into the mold, which is heated.
- 11. The method as claimed in claim 10, including pouring the fiber- or fabric-reinforced plastic at a temperature of at least 200°C and under a pressure of 500 1500 bar.